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CR-131598

MONTHLY PROGRESS REPORT (PRE-MISSION)
For April 1973

Title of Investigation:

An Interdisciplinary Analysis of Multispectral Satellite Data for Selected Cover Types in the Colorado Mountains, Using Automatic Data Processing Techniques.

SKYLAB EREP 398
Principal Investigator: R. M. Hoffer
Contract No.: NAS 9-13380

A. Overall Status and Progress to Date

A.1 Considerable pre-mission coordination of the SKYLAB project was carried out with INSTAAR personnel on April 25-26 when R. M. Hoffer and R. P. Mroczynski were working on ERTS data analysis at Boulder, Colorado. Tentative plans were then made concerning ground truth collection during SL-2. These arrangements will be confirmed the week of May 14.

A.2 The ground tracks and times for candidate and alternate EREP passes for the San Juan Test Site (primary target) and Indian Peaks Test Site (alternate target) have been calculated and plotted using the SKYLAB EREP Console Operations Handbook, Sec. 7, Field Data Pack. In the event of a launch delay only the $\Delta T$ will have to be changed in order to accurately plot the EREP passes, assuming the planned orbit configuration is achieved. If the orbit varies from that as planned, we assume an updated Field Data Pack will be made available as soon as possible, preferrably via the computer link with JSC.

A.3 Cover type (vegetative and geomorphological) maps, of sections of the San Juan Test Site have been constructed by INSTAAR and delivered to LARS for comparison with the existing aircraft coverage from the ERTS-A contract and with the ERTS-A imagery of the test site.

A.4 LARS researchers have been utilizing the LARSYS software system for processing ERTS data now for ten months. The experience in developing analysis techniques and methods for interfacing with this type of small scale data should aid in analyzing EREP data. The EREP data format, as described in the Earth Resources Data Format Control Book, has been studied, and only minimal housekeeping problems in reformatting the data for use in LARSYS are evident.

B. Problem Areas

B.1 NC-130 coverage of the San Juan Test Site has been requested for a total length of 135 flightline miles. This coverage includes

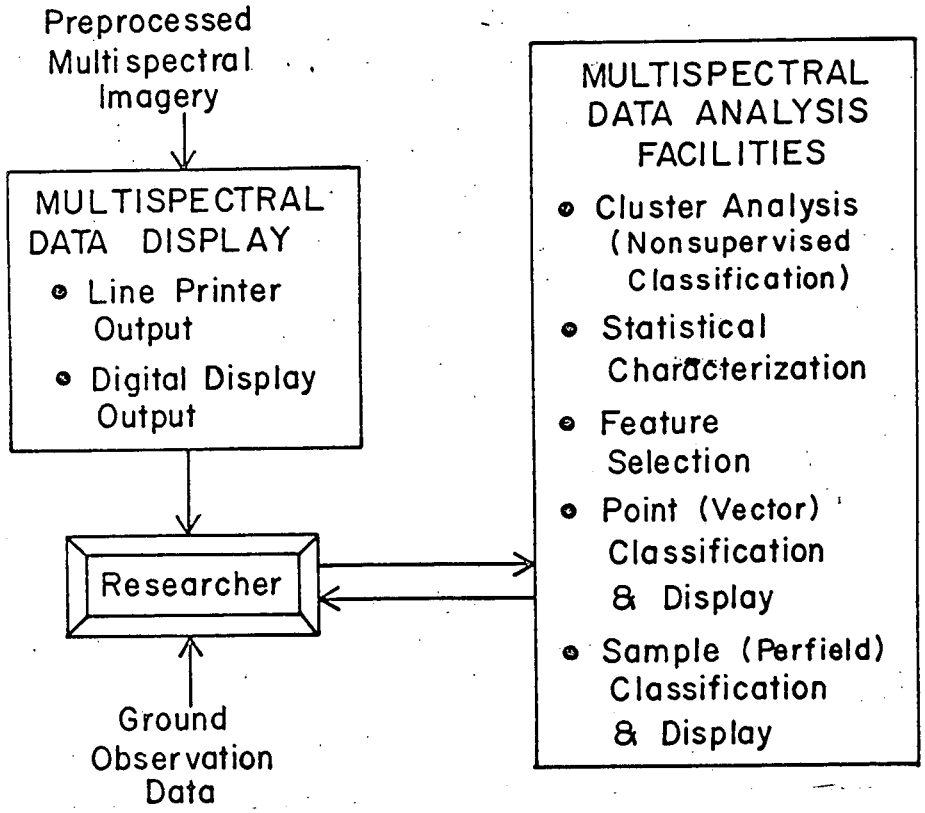
representative areas for the ecological inventory, hydrological, geomorphological sections of the SKYLAB proposal. It is within the S-192 path of 34/247, the candidate EREP pass, and contains the S-191 target. It should be noted here that these flightline miles have been shortened from the original 249 miles, upon NASA's request. Any additional cuts will necessitate specifying a non-continuous flightline so the areas of interest may each receive coverage.

B.2 The RB-57 baseline coverage of the San Juan Test Site as contracted in the ERTS-1 Proposal No. SR030/040 and for this SKYLAB contract has not been flown at this date. This information is crucial for the vegetation, geological, and permafrost studies and should be collected in late June after most of the snow cover has disappeared. Later coverage of this test site will interfere with progress on this study.

B.3 Arrangements have been made with LARS data processing personnel to reformat the bulk S-192 CCT's to a format suitable for use by the LARSYS software system. Because the LARS SKYLAB contract stresses the application of automatic data processing techniques and LARS is one of few facilities in the United States for processing CCT's, we request that the S-192 data be sent to LARS as quickly as possible. Study of the S-192 data for SL-2 will increase our efficiency for ground truth collection for SL-3 and SL-4. Please refer to the letter of May 7, 1973 from Roger Hoffer to Roger Hicks for more details concerning this request.

C. Expected Accomplishments during the Next Reporting Period

C.1 Analysis of S-192 data will be accomplished by utilizing LARSYS as outlined below.



C.2 Computer analysis of S-190A and S-190B data will occur after SL-3 to insure that only the best data incurs the cost of digitization. The S-191 data will be used to calibrate the thermal scanners on the S-192.

C.3 Personnel for evaluating processed data have been organized into working groups as specified in the proposal. All of the graduate assistant positions that are currently funded have been filled. Altogether the project will be staffed by LARS people representing six years of experience working with ERTS-A imagery of mountainous areas.

D. Travel Plans

D.1 S. G. Luther of the LARS staff will be in the EREP Test Site area with INSTAAR personnel during SL-2 to collect ground truth in the form of PRT-5 radiant temperature measurements, aerial photography and observations of weather conditions. For SL-2 a light aircraft will be utilized to collect ground truth due to the ruggedness of the terrain and heavy snow conditions still present. Due to delays in contract negotiations between Purdue and NASA, INSTAAR will not be able to furnish the PRT-10 as budgeted in the proposal. The PRT-5 will be on loan from Purdue. It is expected that by SL-3 INSTAAR will have purchased the PRT-10.